

CLAIMS

1. Installation for the filtration of water by membranes, comprising a raw water inlet (9), connection to a drain (8), a means of outlet of produced water (31), the membranes (20) being immersed in a filtration volume filled with water to be filtered, whose height of water above the said membranes is adapted to create a differential pressure sufficient to provoke the filtration through these membranes, characterised in that the membranes (20) are of the fibre type with outer skins substantially disposed in a U-shape, whose two open ends are located at the bottom, the potting being carried out at the low point of the said membranes (20).

2. Installation according to Claim 1, characterised in that the maximum pressure difference created in the filtration volume is approximately 0.6 bar.

3. Installation according to Claim 2, characterised in that the nominal pressure difference in the filtration volume is between 0.4 and 0.5 bar.

4. Installation according to Claim 3, characterised in that the membranes (20) are disposed in membrane modules (12).

5. Installation according to Claim 4, characterised in that the membrane area of each module (12) is substantially 125 m².

6. Installation according to Claim 5, characterised in that the modules (12) are cylindrical containers (21) substantially having a diameter of 30 cm and a length of 80 cm.

7. Installation according to any one of Claims 4 to 6, characterised in that the modules (12) are disposed substantially at the bottom of a basin (2).

8. Installation according to a Claim 7, characterised in that the modules (12) are gathered in groups (11) around means (17) of collection of water coming from the filtration, to which they are connected.

9. Installation according to Claim 8, characterised in that each group (11) comprises two substantially parallel lines of 10 modules (12).

10. Installation according to any one of Claims 4 to 9, characterised in that the modules (12) are disposed substantially vertically.

11. Installation according to Claim 10, characterised in that the modules (12) comprise a means (14) of feeding with raw water connected to their top section (22).

12. Installation according to Claim 11, characterised in that the means of feeding the modules (12) with raw water are feed pipes (14) whose free ends (16) are located substantially at mid-height of the filtration basin (2).

13. Installation according to Claim 12, characterised in that the feed pipes (14) are, at their free ends (16), oriented downwards and in that the installation comprises evacuation channels (10) located under the ends (16) of theses feed pipes (14), the said channels (10) being connected to a drainage valve (A2) discharging into the drain (8).

14. Installation according to Claim 8, characterised in that each collector means (17) comprises a valve (AV11, AV12, AV13, AV14) separating this collector means (17) from a means of transfer (19) of the produced water to a produced water outlet valve (AV3) and a storage means (30).

15. Installation according to Claim 14, characterised in that it comprises a line (32) for the re-injection of produced water into the transfer means (19) upstream of the produced water

outlet valve (AV3) and a re-injection pump (33) located on this line (32).

16. Installation according to Claim 15, characterised in that it comprises a station for the injection of chlorine (34) and a station for the injection of soda (35) discharging into the re-injection line (32).

17. Installation for the filtration of water by membranes according to Claim 4, characterised in that the membrane modules (12) are disposed at the bottom of a dry compartment, and in that the modules are fed by gravity with water to be filtered by closed pipes, these pipes also serving for conveying the backwashing water.

18. Method of filtration of water by immersed membranes, of the ultrafiltration membrane type, the filtration through the membranes being carried out using the height of water present in the basin (2) in which the membranes (20) are immersed as a source of differential pressure, characterised in that these membranes (20) are of the fibre type with outer skin, potted at the low point of the said membranes (20).

19. Method of rehabilitation of an existing water purification unit of the so-called sand basin type, comprising

